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Southern Illinois
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Department of Anthropology

QUARTERLY REPORT FOR

THE HYDROLOGY OF PREHISTORIC FARMING SYSTEMS IN A CENTRAL ARIZONA
ECOTONE

Contract NAS 9-I3342

Period Covering: Quarter just ending

Number of Investigation: Skylab ERP Project 9670

Principal Investigations Management Office, Lyndon B. Johnson Space Center

Technical Monitor: Mr. Martin Miller

Principal Investigator: Dr. George J. Gumerman

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Quarterly report

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QUARTERLY REPORT

Skylab EREP Project 9670

NAS 9-13342

THE HYDROLOGY OF PREHISTORIC FARMING
SYSTEMS IN A CENTRAL ARIZONA ECOTONE

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Date: September 26, 1973

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The following statement is a quarterly report on EREP Project 9670, contract number NAS 9-13342, entitled "The Hydrology of Prehistoric Farming Systems in a Central Arizona Ecotone." A Quarterly Financial Report accompanies this statement.

In our Milestone Report we suggested that the major items to be accomplished during this reporting period would include the following:

- a) Examination of the first Skylab photos, i.e., the S-190A and S-192 photos;
- b) Organization and equipping of the field operation;
- c) Setting up of the field camp at New River, Arizona;
- d) Initial orientation of students participating in the field operations.

Further, in terms of ground truth activities, we planned to begin the determination of the study area as delimited by the photographs.

We are pleased to report that as of the end of this reporting period, all of these objectives have been realized. At the present time the field operation is in full swing. The setting up of the base camp and orientation of students was accomplished and both archaeological and biological ground truth activities have commenced.

The biologists, under the direction of R. Roy Johnson, have begun a ground truth survey of the test area. This survey has as its major goal the delineation of plant communities within

the test area and the compilation of vegetation maps based on this survey. The biological survey has, to this point, been concentrated in selected drainage basins. This concentration of activity conforms to our Statement of Work (SOW) as stated in our contract, and is in concert with the archaeological activities to be described below. At present, little has been done in correlating the ground truth survey with Skylab photographs, a matter which will be discussed fully below.

The archaeologists, under the field direction of J. A. Hanson and C. S. Weed, have also begun a ground truth survey of the test area with the major objective of delimiting prehistoric settlement patterns and their interrelationships with prehistoric agricultural and water control practices. The ground truth survey has, to this point, been concentrated in the northern part of the test area. This area is primarily one of mesa tops which have been dissected by drainage systems bounding the Agua Fria River. The survey has been concentrated both on the mesas and those canyon bottoms (drainage basins) which are directly associated.

As with the biologists, no correlation has yet been made between the S-190A and S-192 photographs and archaeological ground truth. At present, this constitutes our major problem area. We received both the S-190A and S-192 photographs in August. After examination it was realized that the scale was of such magnitude that the originals would not be useful for our purposes. We have requested 9" x 9" blowups of these photos,

but they have not arrived as yet. It was our understanding that these would be sent sometime after September 21, 1973. That being the case, we are eagerly anticipating their arrival. Directly upon their arrival a thorough examination of the photos will be undertaken and correlations with ground truth will be determined. It cannot be stressed too strongly that these blowups are necessary to ensure the attainment of the experiment's scientific objectives.

We expect to accomplish a great deal during the next reporting period. As noted, upon receipt of the S-190A and S-192 9" x 9" positive transparency blowups, examinations will be undertaken to determine their utility for the delineation of vegetation communities, drainage patterns, and prehistoric water control and agricultural systems.

We plan to continue the ground truth survey operations by both archaeologists and biologists, and to begin the same by geologists and hydrologists. As with work already undertaken, these surveys will be concentrated in selected drainage basins. By the end of the next quarter we fully expect to have determined:

- 1) The limits and types of vegetation communities in the test area;
- 2) The extent and types of prehistoric water control systems in the test area;
- 3) The hydrological and geological properties of selected drainage basins in the test area.

These three areas will be examined through ground truth surveys, Skylab photographs, U-2 overflights, and limited reconnaissance by low altitude light aircraft overflights.

Further, we plan to carry out limited test excavations in an effort to delineate the types of water control devices which were being utilized by the prehistoric populations that inhabited the test area.

Our relatively brief time in the field coupled with our inability to examine the S-190A and S-192 photographs during this reporting period has essentially negated the possibility of significant results at this point. We fully expect to have significant results to report during the next quarterly period.

Our summary outlook for the remaining effort has not changed significantly from those statements contained in our Milestone Report.

Similarly, there is little to report regarding travel. The only significant travel undertaken by the Principle Investigator was a trip to the L.B.J. Manned Spacecraft Center in mid-September. During the coming quarterly period, the archaeologists involved in the project expect to travel to New Orleans for the annual meetings of the American Anthropological Association. Although there are no present plans to present formal papers regarding the project at that time, it is certain that informal discussion of the project by the participants will be carried out.